

**ACL RECONSTRUCTION
USING THE QUADRICEPS TENDON
WITH AND WITHOUT PATELLAR BONE PLUG:
COMPARISON OF THE RESULTS**



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INTRODUCTION



The middle third of quadriceps tendon is an autograft of sufficient size and strength

stronger than PT of same dimensions

It can be fixed to the femur and the tibia using multiple techniques.

We are presenting the results of arthroscopic ACL reconstruction using Quadriceps tendon autograft with and without patellar bone plug.

PATIENTS - METHODS

Time period: *March 1999- December 2000*

Patients: *27 (Groups A & B)*

Reason for reconstruction: *chronic ACL deficiency*

Procedure: *Arthroscopic ACL reconstruction*

Gender: *male*

Age: *19-34 years*



PATIENTS - METHODS

Group A

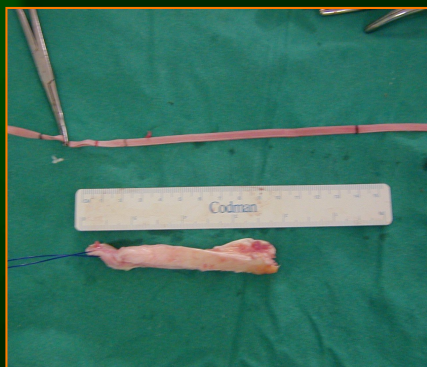
Patients: 13

Type of graft: *middle third of Q-tendon
without patellar bone plug*

Type of fixation: *special soft tissue fixation device
(Mark II, Surgicraft, UK)*

Femur : *over-the-top & bollard cortical fixation*

Tibia : *tunnel & bollard cortical fixation*



PATIENTS - METHODS

Group B

Patients: 14

Type of graft: *middle third of Q tendon
with patellar bone plug*

Type of fixation: *special soft tissue fixation device
(Patella Soffix, Surgicraft, UK)*

Femur : *over-the-top & bollard cortical fixation*

Tibia : *tunnel & bollard cortical fixation*



EVALUATION

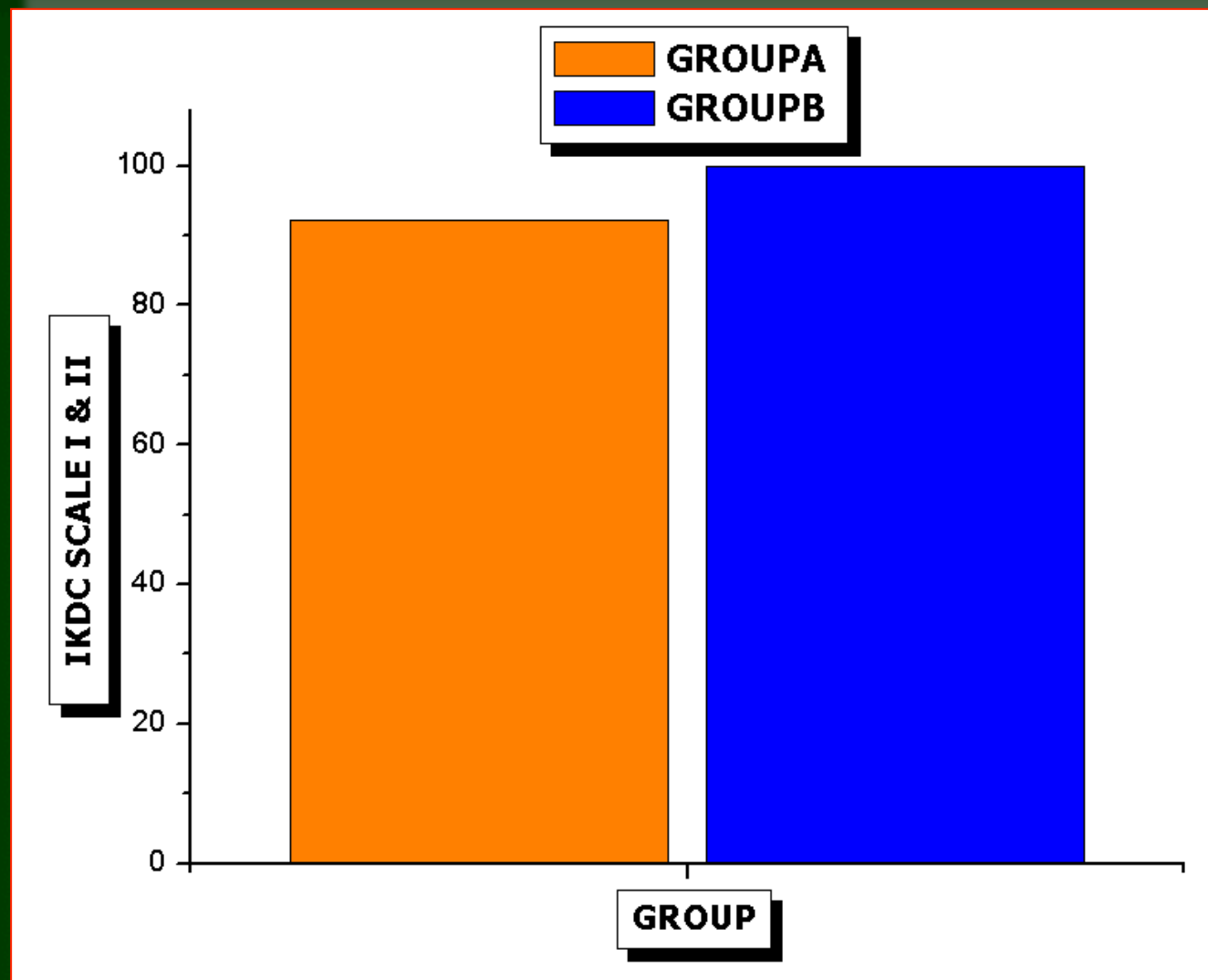
Mean follow-up: *25 months*

Rating scales: *IKDC*
Lysholm-Tegner

Knee laxity evaluation: *Rolimeter*



RESULTS



There was no significant difference between the two fixation methods

RESULTS



MRI evaluation and second look arthroscopies in 7 patients revealed graft survival

CONCLUSION

Usage of the middle third of Q tendon with or without patellar bone plug in ACL reconstruction yields similar results regarding stability and function combining low rate of complications and minimal donor site morbidity



REFERENCES

1. Brand J Jr, Hamilton D, Selby J, Pienkowski D, Caborn DN, Johnson DL. Biomechanical comparison of quadriceps tendon fixation with patellar tendon bone plug interference fixation in cruciate ligament reconstruction. *Arthroscopy* 2000 Nov;16(8):805-12.
2. Chen CH, Chen WJ, Shih CH. Arthroscopic anterior cruciate ligament reconstruction with quadriceps tendon-patellar bone autograft. *J Trauma* 1999 Apr;46(4):678-82.
3. Fulkerson JP, Langelan R. An alternative cruciate reconstruction graft: The central quadriceps tendon. *Arthroscopy* 1995;11:252-254.
4. Harris NL, Smith DA, Lamoreaux L, Purnell M. Central quadriceps tendon for anterior cruciate ligament reconstruction. Part I: Morphometric and biomechanical evaluation. *Am J Sports Med* 1997;25:23-28.
5. Kim DW, Kim JO, You JD, Kim SJ, Kim HK. Arthroscopic anterior cruciate ligament reconstruction with quadriceps tendon composite autograft. *Arthroscopy* 2001 May;17(5):546-50.
6. Kornblatt I, Warren RF, Wickiewicz TL. Long-term follow-up of anterior cruciate ligament reconstruction using the quadriceps tendon substitution for chronic anterior cruciate ligament insufficiency. *Am J Sports Med* 1978; 5:444-448.
7. Noronha JC, Vasconcelos JC, Pinto A, et al. Reconstruction of the anterior cruciate ligament with quadriceps tendon. *Rev Port Orthop Trauma* 1998; 6:143-147.
8. Noronha JC. Reconstruction of the anterior cruciate ligament with quadriceps tendon. *Arthroscopy* 2002 Sep; 18(7):E37
9. Staubli HU, Schatzmann L, Brunner P, Rincon L, Nolte LP. Quadriceps tendon and patellar ligament: cryosectional anatomy and structural properties in young adults. *Knee Surg Sports Traumatol Arthrosc* 1996;4(2):100-10.
10. Staubli HU, Schatzmann L, Brunner P, Rincon L, Nolte LP. Mechanical tensile properties of the quadriceps tendon and patellar ligament in young adults. *Am J Sports Med* 1999 Jan-Feb; 27(1): 27-34.